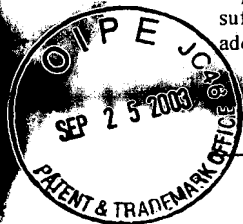


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David W. Okey

Signature

22 September 2003

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Our Case No. 10420/12

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: David et al.

Serial No. 09/851,849

Filing Date: May 9, 2001

For: Router Apparatus

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) Examiner: William R. Briggs
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) Group Art Unit No. 3722
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APPEAL BRIEF

Mail Stop Appeal Brief – Patents
Commissioner for Patents
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TABLE OF CONTENTS

I. Real Party in Interest	3
II. Related Appeals and Inteferences	3
III. Status of Claims	3
IV. Status of Amendments	3
V. Summary of Invention	3
VI. Issues	6
VII. Grouping of Claims	6
VIII. Argument	6
IX. Appendix (Claims 1-25)	18

This is an appeal from the final rejections in the Office Action mailed on March 20, 2003 (Paper No. 10) for the application of Bruce R. David et al., and is timely filed in accordance with the Notice of Appeal filed on July 21, 2003.

I. Real Party in Interest

The real party in interest is the assignee, United Air Lines, Inc.

II. Related Appeals and Interferences

There are no related appeals or interferences that would affect, be affected by, or have a bearing upon, the Board's decision in the present appeal in this application.

III. Status of Claims

Claims 1-25 are pending in this application. Claims 12-21 are finally rejected under 35 U.S.C. § 103(a) over U.S. Pat. No. 3,476,161 to L.E. Dunlap in view of U.S. Pat. No. 4,599,018 to Quentin Woods. Claims 1-11 and 22-25 are finally rejected under 35 U.S.C. § 103(a) over U.S. Pat. No. 3,476,161 to L.E. Dunlap in view of U.S. Pat. No. 4,599,018 to Quentin Woods and further in view of U.S. Pat. No. 5,503,203 to Ase Stornetta.

IV. Status of Amendments

The last Amendment filed in this case was mailed by Appellants on January 17, 2003, in response to a non-final rejection mailed on October 2, 2002 (Paper No. 6). The Amendment was entered. No other amendments are pending.

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V. Summary of Invention

The invention relates to a router apparatus for removing strips of sheet metal, such as aircraft skin laps. The description in this "summary" is intentionally narrower and more concise than the summary of the invention given in the patent application, the invention being defined in the claims of the application. The purpose of the summary presented here is to allow the Board to quickly focus on the invention and how it is distinguished from the prior art cited.

The router apparatus is best seen in Figs. 6-8 of the present application. Router apparatus 70 includes a guide 62, mounted to the aircraft skin with a fastener 58. The guide may be a piece of nylon or plastic with a controlled height or thickness, and may have a profiled cross-section. Mounted movably atop guide 62 is a platform or trolley 64, suitable for mounting a router 60. Router 60 has gripping handles 78, speed adjustment 76, typically for adjusting the flow of air from pneumatic connection 80 to an air motor internal to the router. The flow adjustment adjusts the speed of the router, rpm, depending on the drilling/ milling tool 82 used, the material to be cut and its thickness, and the speed with which the operator propels the router along the guide. An electric router may alternately use an electrical method to control router tool speed, such as a DC motor or a controlled AC motor. Specification, p. 6, lines 2-14. *p. 5 l. 1-14*

In one embodiment, the router also has a mechanism for adjusting the height of the cutting tool, namely a vertical adjustment screw 73 and a height adjustment nut 75. The screw mates with the height adjustment nut 75. Locking nut or jam nut 74 enables the operator to maintain the desired setting. The external surfaces of the adjustment screw and jam nut may be knurled for easier tightening and loosening. Using a large outer diameter of several inches for these components helps to insure that hand-tightening alone by an operator is sufficient to prevent loosening during router operation. A height indicator may also be added for easy referral by the operator. Specification, p. 5, lines 15-25. Using the vertical settings, and with a known thickness of a guide for the platform, the operator has complete and precise control over the depth of cut to make into the aircraft skin. In this manner, the router makes no accidental cuts into the stringers, tear straps, or other structural members of the aircraft. Specification, ~~p. 6, lines 25-29.~~ *p. 5 l. 25-29*

C.B.T. In one embodiment, the router travels along the guide as propelled by the operator. In other embodiments, the router trolley may be outfitted with a device to drive the trolley along the length of the aircraft, such as a small motor. The router itself does not travel, but rather the platform 64 to which the router is attached. The platform may also be equipped with bearings 66 for easier movement of the platform along the guide 62. Specification, p. 5, line 30, to p. 6, line 5.

Router apparatus 70 and router 60 may be equipped with a vacuum attachment 84 via a fitting 86 on the platform 64, for instantaneous removal of chips and debris generated during the removal of the skin portions, forming a gap 88 between the aircraft skin and the overlap to be removed. The platform may also be equipped with a terminal block 90 for connection to a regulated supply of air 92, and for connection to a pneumatic router air hose 80. The connections may be quick-disconnects or permanent fittings as desired. The supply of air may be any suitable supply, such as shop air or bottled gas. Specification, p. 6, lines 6-14.

Fasteners 58 firmly mount track 62 to aircraft skin 50. Bearings 66 contained within the platform 64 help for easy maneuvering of the platform along the track during cutting operations. Bearings, such as pre-packed anti-friction bearings, may be used for interfacing platform 64 with guide 62. Guide 62 may be profiled for easier movement of the router platform along the guide, and the internal portion of the platform, with four bearings, to match. In this embodiment, the track is profiled and the router actually rests atop the track, the platform 64 suspended just above the skin of the aircraft to prevent any damage from contact with the aircraft skin. In operation, the operator positions himself or herself on the near side of the router apparatus, grasps the handles 78, and cuts the overlap from the skin of the aircraft. Specification, p. 6, lines 15-26.

When a cut is complete, the operator makes another cut in a return path on the opposite side of the guide, in order to remove the desired 3 or 4 inches of skin overlap. In one embodiment, the platform and router may be removed from the guide, turned 180 degrees, and the return cut made. The router 70 may be removed from the platform 64, along with vacuum fitting 86 and with debris hose 84, and re-positioned on the platform. In this embodiment, the platform itself need not be removed from the guide in order for the re-configured router apparatus to make the return cut on the other side of the guide. This reconfiguring is easier if the platform has an extra through-orifice 94, for the cutting tool to access the aircraft skin. Specification, p. 6, line 27, to p. 7, line 5.

VI. Issues

The issues on appeal are as follows: 1) whether there is error in the final rejection of Claims 12-21 as being unpatentable under 35 U.S.C. § 103(a) over U.S. Pat. No. 3,476,161 to L.E. Dunlap in view of U.S. Pat. No. 4,599,018 to Quentin Woods; and 2) whether there is error in the final rejection of Claims 1-11 and 22-25 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Pat. No. 3,476,161 to L.E. Dunlap in view of U.S. Pat. No. 4,599,018 to Quentin Woods and further in view of U.S. Pat. No. 5,503,203 to Ase Stornetta.

VII. Groupings of Claims

The Claims do not stand or fall together with regard to rejections over the prior art. In order to separately consider a plurality of claims subject to the same rejection, the Appellants must state that the claims do not stand or fall together and present arguments why the claims are separately patentable. In re McDaniel, 63 U.S.P.Q.2d 1462, 1464 (Fed. Cir. 2002) (citing M.P.E.P. 1206 and 37 C.F.R. 1.192(c)(7)). Arguments for the claim groups listed below are presented in the arguments section. Accordingly, Appellants provide the following claim groups:

The patentability of Claims 1-4, 7 and 10-11 stand or fall together.

The patentability of Claims 5 and 6 stand or fall together.

The patentability of Claim 8 stands alone.

The patentability of Claim 9 stands alone.

The patentability of Claims 12-16 and 20-21 stand or fall together.

The patentability of Claims 17-18 stand or fall together.

The patentability of Claim 19 stands alone.

The patentability of Claims 22-23 stand or fall together.

The patentability of Claims 24-25 stand or fall together.

VIII. Argument

iv. Rejections under 35 U.S.C. § 103(a). Arguments on the error in final rejections of the claims are presented in the order of the rejections themselves.

Claims 12-16 and 20-21

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Claim 12 is finally rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Pat. No. 3,476,161 to L.E. Dunlap ("Dunlap") in view of U.S. Pat. No. 4,599,108 to Quentin Woods ("Woods"). The rejection over Dunlap in view of Woods states that Dunlap teaches a "router apparatus" in Figs. 8 and 9, wherein a "guide" is attached to a workpiece surface and a "platform" is mounted thereon and a router "having a vertical adjustment" and an "endmill cutter" therein is provided on the "platform." Office Action, p. 2, lines 10-13. Appellants traverse the characterization of the tool 100 in Figs. 8 and 9 as an "endmill cutter." The tool is described in Dunlap as a "tool 100," cited in the rejection itself on p. 4, lines 2-3. The figures depict the tool as having an angled bottom or distal surface, as a drill would have, rather than the flat surface which is characteristic of an endmill. This is a first indication of hindsight, in which Appellants' own invention is used against them in rejecting the claims.

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The rejection concedes that the "guide" in Dunlap is not fastened to the workpiece by "fasteners drilled through the skin," but states that one possessing ordinary skill in the related art would be expected to readily adapt known fastening means as taught by Woods wherein fasteners attach a "guide" to a workpiece surface to modify the attachment means of Dunlap, as the equivalent stabilization and fixing of the guide is unchanged in the modification. The rejection also states that one so doing would achieve the benefit of more rigid attachment of the guide that is inherent in the use of fasteners as taught by Woods.

a. There is no motivation to combine the references.

Appellants traverse the rejection on the grounds that there is no motivation to combine the references; even combined, the references do not disclose or suggest all the limitations of Claim 12. The argument here will focus on the improper combination of Dunlap and Woods.

In order to make out a *prima facie* case of obviousness under 35 U.S.C. § 103(a), there must be some suggestion, in the prior art or in the references themselves, on the desirability of combining the references. M.P.E.P. 2143.01. The rationale given in the rejection for combining Dunlap and Woods is that the

combination "would achieve the benefits of more rigid attachment of the guide that is inherent in use of fasteners as taught by Woods." Office Action, p. 2, lines 18-19. One would not be motivated to make the combination of Dunlap and Woods for at least two reasons: the combination would make the attachment LESS stable than Dunlap's already "immovable" hold, not more stable; and the proposed combination would require more work and setup than the references cited in the rejection.

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Dunlap describes using a vacuum plate for holding a horizontal, flat workpiece when using a router. Col. 5, line 68, to col. 6, line 5. The router and a support plate move horizontally on a guide track formed by a cylindrical rod and received in a groove formed in the support plate. Col. 6, lines 6-12. The router moves smoothly along the guide track while making its cut on the workpiece. As shown in Fig. 8 of Dunlap, the router moves along the guide track (cylindrical rod) while the platform is held with a support plate 116 and a vacuum plate 118, the vacuum secured by seals 120. The vacuum plate provides an "immovable" hold to secure the support plate to the workpiece. Col. 6, lines 1-3. Dunlap, therefore, teaches an "immovable" hold and provides no motivation for seeking a better way to hold a router to a workpiece. Dunlap also requires minimal setup: orient the platform, the support plate, the guide and the workpiece, and one is ready to begin work. Dunlap does not describe or suggest securing the guide to the workpiece with fasteners drilled through the workpiece; a cylindrical rod, acting as a guide, rests in a groove in the support plate, i.e. the guide is held only by gravity.

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In addition to these arguments, Dunlap teaches away from any sort of combination with Woods by pointing out several advantages of Dunlap's invention: the guide and support structure are removably supported on the surface of the workpiece, and can be quickly and easily removed from the workpiece with no damage to the workpiece. Dunlap, col. 2, lines 22-27. These features are not applicable to the methods of Woods, who uses mounting bolts drilled through the workpiece.

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By contrast, Woods provides a much more elaborate mechanism for drilling holes in a vertical workpiece, and requiring much more setup. Woods does not cite the rigidity of his structure as an advantage, but rather the automation of a common manufacturing task. Col. 1, lines 16-17. Figs. 2 and 3 depict the elaborate

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mechanism of Woods, which is supported against gravity by a pair of support members 18 and two bolts 32. See col. 2, line 57, to col. 3, line 7. See also col. 3, lines 44-46, stating "support members 18 are then secured to a first and a third latch bolt," i.e., two bolts. Therefore, while Dunlap provides a setup with an "immovable" hold, securing a large workpiece with a large vacuum plate to a large flat support plate with the aid of gravity, and a guide held by gravity alone, Woods teaches the use of two bolts to vertically secure a large, elaborate drilling template. Woods provides no motivation for the combination with Dunlap. see advisory

Only with impermissible hindsight can one combine the vertical template, bolts and drills of Woods with the gravity-held guide and vacuum-held, horizontal-running router of Dunlap to arrive at the claimed invention, especially in view of Dunlap's teaching away from the combination. In re Deuel, 34 U.S.P.Q.2d 1210 (Fed. Cir. 1995) (reversing rejections for obviousness because of the use of impermissible hindsight). Therefore, the final rejection of Claims 12 and dependent Claims 13-16 and 20-21 under 35 U.S.C. § 103(a) is error.

b. Even combined, the references do not describe or suggest all the limitations of the invention claimed in Claim 12.

Claim 12 claims a sheet metal router apparatus, including "a guide, fastened to the skin by fasteners drilled through the sheet metal." Claim 12 also claims "a platform, mounted on the guide" and "a router having a vertical adjustment, mounted on the platform; wherein an operator . . . moves the platform continuously along the guide to make a desired cut." Dunlap discloses a tool support guide atop a surface that guides a router and platform over a workpiece. The rejection concedes that Dunlap does not disclose "fasteners drilled through the skin." Office Action, p. 2, lines 13-14. Woods does not describe or suggest a guide and a platform mounted on the guide; Woods mounts a drilling unit onto a wing. Even if one analogizes the drilling unit as a "guide," as in the Office Action, p. 2, line 16-17, the rejection cites no component analogous to the claimed "platform." In any case, there is no provision for an apparatus that "moves the platform *continuously* along the guide" (emphasis added). The analogy fails, and the combination does not describe or suggest all the limitations of the invention claimed in Claim 12. ?

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To combine the references, and to meet the limitations of the invention claimed in Claim 12, one would have to replace the gravity-held guide of Dunlap, as shown in Fig. 8 of Dunlap, with fasteners drilled through workpiece 130, vacuum plate 118, support plate 116, and cylindrical rod guide 132. Dunlap clearly shows no such thing. To combine the references in the context of Woods would be an even further stretch; but Woods' carriage is not meant for *moving continuously*, as is the claimed platform. Therefore, the combination of references fails, and it is error to finally reject Claims 12-16 and 20-21 under 35 U.S.C. § 103(a).

Claims 17-18

Claims 17 and 18 are finally rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Pat. No. 3,476,161 to L.E. Dunlap ("Dunlap") in view of U.S. Pat. No. 4,599,108 to Quentin Woods ("Woods"). Claims 17 and 18 depend from Claim 12 and therefore their rejection is improper for the reasons stated above with respect to Claim 12. The rejection of Claim 17 is improper for the additional reason that at least one limitation of Claim 17, the limitation "an end mill attached with the router," is not disclosed or taught in the cited references. The rejection of Claim 18 is improper for the additional reason that at least one limitation of Claim 18, "wherein the endmill is a 0.25", three-fluted end mill," is not disclosed or taught in the cited references. } disagree

The rejection mischaracterizes Dunlap as describing a router with "an endmill cutter therein." Office Action, p. 2, lines 10-12. As mentioned above in the discussion of Claim 12, Dunlap discloses a router with a tool, the tool depicted in Figs. 8 and 9 of Dunlap as a drill or a router bit, but in any case not depicted with the flat end characteristic of an endmill. The Woods reference deals with drills, not end mills and does not describe a router or an endmill. Neither reference describes or suggests end mills or 0.25", three-fluted endmills. A rejection of claims over a combination of elements disclosed in the prior art must be based on the *specific* combination that was made by the applicant. In re Kotzab, 55 U.S.P.Q.2d 1313, 1316 (Fed. Cir. 2000) (emphasis added). The improperly-combined references do not disclose all the limitations of the inventions claimed in Claims 17 and 18 of the present application. Even if the references disclosed the limitations of Claims 17 and 18, as pointed out in the arguments for Claim 12, other limitations of Claim 12

are not taught in the references and one would not be sufficiently motivated to combine Dunlap and Woods. Therefore, it is error to finally reject Claims 17 and 18 under 35 U.S.C. § 103(a).

Claim 19

Claim 19 is finally rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Pat. No. 3,476,161 to L.E. Dunlap ("Dunlap") in view of U.S. Pat. No. 4,599,108 to Quentin Woods ("Woods"). Claim 19 depends from Claim 12 and therefore its rejection is improper for the reasons stated above with respect to Claim 12. The rejection of Claim 19 is improper for the additional reason that at least one limitation of Claim 19, the limitation "wherein the guide is a plastic material formed to a uniform height and width," is not disclosed or taught in the cited references.

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In Dunlap, there is a "guide," described as a cylindrical rod. Col. 6, lines 6-12. In Fig. 8 of Dunlap, the cross-sections of the components depict component 132, the cylindrical rod, with cross-hatching for metallic materials, while only the seals 120 are depicted with cross-hatching for rubber or electrical insulation materials. M.P.E.P. 600-95. Woods does not mention rubber or plastic materials.

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A rejection of claims over a combination of elements disclosed in the prior art must be based on the *specific* combination that was made by the applicant. In re Kotzab, 55 U.S.P.Q.2d 1313, 1316 (Fed. Cir. 2000) (emphasis added). There is no specific disclosure in Dunlap or Woods of a guide made of a plastic material. The improperly-combined references do not disclose all the limitations of the inventions claimed in Claim 19 of the present application. Even if the references disclosed the limitations of Claim 19, as pointed out in the arguments for Claim 12, one would not be sufficiently motivated to combine Dunlap and Woods. Therefore, it is error to finally reject Claim 19 under 35 U.S.C. § 103(a).

Claims 1-4, 7, and 10-11

Claims 1-4, 7, and 10-11 are finally rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Pat. No. 3,476,161 to L.E. Dunlap ("Dunlap") in view of U.S. Pat. No. 4,599,108 to Quentin Woods ("Woods") and further in view of U.S. Pat. No. 5,503,203 to Ase Stornetta ("Stornetta"). The rejection states that Claims

1-11 are unpatentable over Dunlap in view of Woods, and further in view of Stornetta, which discloses the use of a vacuum fitting. The rejection further states that the use of a vacuum fitting for collecting machining debris is well-known in the machine tool art and that the use of such attachment in the device of Dunlap as taught by Woods would be obvious to one possessing ordinary skill in the art to achieve the benefits that would accrue thereto as set forth in Stornetta such as reduced hazard to the operator. Office Action, p. 3, lines 4-8. The rejection over Dunlap in view of Woods is discussed above with reference to Claim 12.

Claim 1 claims an aircraft skin lap router apparatus, comprising a guide fastened to the skin by fasteners drilled through the skin. The apparatus also includes a platform mounted on the guide and a router having a vertical adjustment mounted on the platform. There is also a vacuum fitting mounted on the platform, wherein an operator adjusts the vertical adjustment for a desired depth of cut on the aircraft skin lap, the router cuts the skin lap and removes debris via the vacuum fitting. Claim 1 is narrower than independent Claim 12, having limitations of an "aircraft skin lap router apparatus" in which the router is adjusted for "a desired depth-of-cut on the aircraft skin," and also a limitation of a vacuum fitting, by which debris is removed. The rejections are improper because there is no motivation to combine at least Dunlap and Woods; and even the improper combination does not describe or suggest all the limitations of the inventions claimed in Claims 1-4, 7 and 10-11.

As discussed above with reference to Claim 12, it is improper to combine Dunlap with Woods because there is no motivation to combine the references, and Dunlap specifically teaches away from the combination. Only with impermissible } hindsight can one combine the vertical template, bolts and drills of Woods with the gravity-held guide and horizontal-running router of Dunlap to arrive at the invention claimed in Claim 1, especially in view of Dunlap's teaching away from the combination. In re Deuel, 34 U.S.P.Q.2d 1210 (Fed. Cir. 1995) (reversing rejections for obviousness because of the use of impermissible hindsight).

In addition, the improper combination does not describe or suggest all the limitations of the invention claimed in Claim 1. Claim 1 recites a router, a guide and a platform, to be used for making a desired depth-of-cut on an aircraft skin lap. The

rejection cites no specific reference for limitations of "a guide, fastened to the skin by fasteners drilled through the skin," or "a platform mounted on the guide," or "a router . . . mounted on the platform." Therefore, it is error to finally reject Claim 1 and dependent Claims 2-4, 7, and 10-11 under 35 U.S.C. § 103(a).

Claims 5-6

Claims 5 and 6 are finally rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Pat. No. 3,476,161 to L.E. Dunlap ("Dunlap") in view of U.S. Pat. No. 4,599,108 to Quentin Woods ("Woods"), and further in view of U.S. Pat. No. 5,503,203 to Ase Stornetta ("Stornetta"). Claims 5 and 6 depend from Claim 1 and therefore their rejection is improper for the reasons stated above with respect to Claim 1. The rejection of Claim 5 is improper for the additional reason that at least one limitation of Claim 5, the limitation "an end mill attached with the router," is not disclosed or taught in the cited references. The rejection of Claim 6 is improper for the additional reason that at least one limitation of Claim 6, "wherein the endmill is a 0.25", three-fluted end mill," is not disclosed or taught in the cited references.

The rejection mischaracterizes Dunlap as describing a router with "an endmill cutter therein." Office Action, p. 2, lines 10-12. As mentioned above in the discussions of Claims 1 and 12, Dunlap discloses a router with a tool, the tool depicted in Figs. 8 and 9 of Dunlap as a drill or a router bit, but in any case not depicted with the flat end surface characteristic of an endmill. The Woods reference deals with drills, not end mills, and does not describe a router or an endmill. Neither reference describes or suggests end mills or 0.25", three-fluted endmills. A rejection of claims over a combination of elements disclosed in the prior art must be based on the *specific* combination that was made by the applicant. In re Kotzab, 55 U.S.P.Q.2d 1313, 1316 (Fed. Cir. 2000) (emphasis added).

The improperly-combined references do not disclose all the limitations of the inventions claimed in Claims 5 and 6 of the application. Even if the references disclosed the limitations of Claims 5 and 6, as pointed out in the arguments for Claim 1, one would not be sufficiently motivated to combine Dunlap and Woods. Therefore, it is error to finally reject Claims 5 and 6 under 35 U.S.C. § 103(a).

Claims 8-9

Claims 8-9 are finally rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Pat. No. 3,476,161 to L.E. Dunlap ("Dunlap") in view of U.S. Pat. No. 4,599,108 to Quentin Woods ("Woods"), and further in view of U.S. Pat. No. 5,503,203 to Ase Stornetta ("Stornetta"). Claims 8-9 depend from Claim 1 and therefore their rejection is improper for the reasons stated above with respect to Claim 1. The rejection of Claim 8 is improper for the additional reason that at least one limitation of Claim 8, the limitation "wherein the guide is a plastic material formed to a uniform height and width," is not disclosed or taught in the cited references. Claim 9 further limits the guide to a nylon profile.

In Dunlap, there is a "guide," described as a cylindrical rod. Col. 6, lines 6-12. In Fig. 8 of Dunlap, the cross-sections of the components depict component 132, the cylindrical rod, with cross hatching for a metallic material, while only the seals 120 are depicted with cross hatching for rubber or electrical insulation materials. M.P.E.P. 600-95. Woods does not mention rubber or plastic materials.

A rejection of claims over a combination of elements disclosed in the prior art must be based on the *specific* combination that was made by the applicant. In re Kotzab, 55 U.S.P.Q.2d 1313, 1316 (Fed. Cir. 2000) (emphasis added). There is no specific disclosure in Dunlap or Woods of a guide made of a plastic or nylon material used as a guide. The improperly-combined references do not disclose all the limitations of the inventions claimed in Claims 8 and 9 of the present application. Even if the references disclosed the limitations of Claims 8 and 9, as pointed out in the arguments for Claims 1 and 12, one would not be sufficiently motivated to combine Dunlap and Woods. Therefore, it is error to finally reject Claims 8 and 9 under 35 U.S.C. § 103(a).

Claims 22-23

Claims 22-23 are finally rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Pat. No. 3,476,161 to L.E. Dunlap ("Dunlap") in view of U.S. Pat. No. 4,599,108 to Quentin Woods ("Woods"), and further in view of U.S. Pat. No. 5,503,203 to Ase Stornetta ("Stornetta"). The rejection states that Claims 22-23 are unpatentable over Dunlap in view of Woods, and further in view of Stornetta, which

discloses the use of a vacuum fitting. The rejection further states that the use of a vacuum fitting for collecting machining debris is well-known in the machine tool art and that the use of such attachment in the device of Dunlap as taught by Woods would be obvious to one possessing ordinary skill in the art to achieve the benefits that would accrue thereto as set forth in Stornetta such as reduced hazard to the operator. Office Action, p. 3, lines 4-8. The rejection over Dunlap in view of Woods is discussed above with reference to Claim 12 and also with respect to Claim 1.

Claim 22 claims an aircraft skin lap router apparatus, comprising a nylon guide, fastened to the skin by fasteners drilled through the skin, and a platform mounted on the guide, the platform interfacing with the guide through at least one bearing. There is also a router having a vertical adjustment within one-thousandth of an inch mounted on the platform, the router having at least two hand grips and a speed adjustment, and adapted to receive a source of power. The apparatus also includes an end mill and a vacuum fitting. There are functional limitations for using the router for a desired depth-of-cut on the aircraft skin lap. Claim 23 limits the source of power to electric or pneumatic sources of power.

The rejections are improper because there is no motivation to combine at least Dunlap and Woods; and even the improper combination does not describe or suggest all the limitations of the invention claimed in Claim 22. As discussed above with reference to Claim 12, it is improper to combine Dunlap with Woods because there is no motivation to combine the references, and Dunlap specifically teaches away from the combination. Only with impermissible hindsight can one combine the vertical template, bolts and drills of Woods with the gravity-held guide and horizontal-running router of Dunlap to arrive at the invention claimed in Claim 22, especially in view of Dunlap's teaching away from the combination. In re Deuel, 34 U.S.P.Q.2d 1210 (Fed. Cir. 1995) (reversing rejections for obviousness because of the use of impermissible hindsight).

In addition, the improper combination does not describe or suggest all the limitations of the invention claimed in Claim 22. Claim 22 is narrow, with many limitations, for use in making a desired depth-of-cut on an aircraft skin lap. The rejection cites no specific reference for limitations of "an aircraft skin lap router apparatus," "a nylon guide fastened to the skin by fasteners drilled through the skin,"

"a platform, mounted on the guide, the platform interfacing with the guide through at least one bearing," "a router . . . mounted on the platform," and "an end mill."

Therefore, it is error to finally reject Claim 22 and dependent Claim 23 under 35 U.S.C. §103(a).

Claims 24-25

Claims 24-25 are finally rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Pat. No. 3,476,161 to L.E. Dunlap ("Dunlap") in view of U.S. Pat. No. 4,599,108 to Quentin Woods ("Woods"), and further in view of U.S. Pat. No. 5,503,203 to Ase Stornetta ("Stornetta"). The rejection states that Claims 24-25 are unpatentable over Dunlap in view of Woods, and further in view of Stornetta, which discloses the use of a vacuum fitting. The rejection further states that the use of a vacuum fitting for collecting machining debris is well-known in the machine tool art and that the use of such attachment in the device of Dunlap as taught by Woods would be obvious to one possessing ordinary skill in the art to achieve the benefits that would accrue thereto as set forth in Stornetta such as reduced hazard to the operator. Office Action, p. 3, lines 4-8. The rejection over Dunlap in view of Woods is discussed above with reference to Claim 12 and also with respect to Claim 1.

Claim 24 claims a sheet metal router apparatus and is broader than Claim 22. Claim 25 depends from Claim 24 and limits the router apparatus to electric or pneumatic sources of power. It is improper to combine Dunlap and Woods to arrive at the rejection of the inventions claimed in Claims 24-25 because, as discussed above, there is no motivation to combine these two references. Even the improperly combined references do not describe or suggest all the limitations of Claims 24-25. At least these limitations are not disclosed in the references: "a nylon guide, fastened to the sheetmetal by fasteners drilled through the sheetmetal;" "a platform, mounted on the guide, the platform interfacing with the guide through at least one bearing;" "a router . . . mounted on the platform;" and "an end mill," in which "an operator . . . moves the platform continuously along the guide to make a desired cut."

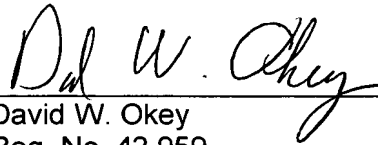
Therefore, the final rejection of independent Claim 24 and dependent Claim 25 under 35 U.S.C. § 103(a) is error.

CONCLUSION

In view of the above remarks, Appellants submit that the claimed invention is not unpatentably obvious over the references of record, and that the Office Action has not made out a sustainable case of obviousness for Claims 1-25. Accordingly, Appellants request reversal of the rejections of Claims 1-25 under 35 U.S.C. § 103(a). The reversal of all the rejections appears to be in order and is earnestly solicited.

The fee under 37 C.F.R. 1.17 (f) for filing this Appeal Brief is submitted with the accompanying transmittal.

Respectfully submitted,



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IX. Appendix Claims in the Application

1. An aircraft skin lap router apparatus, comprising:
a guide, fastened to the skin by fasteners drilled through the skin;
a platform, mounted on the guide;
a router having a vertical adjustment, mounted on the platform; and
a vacuum fitting, mounted on the platform, wherein an operator adjusts the router vertical adjustment for a desired depth-of-cut on the aircraft skin lap, the router cuts the skin lap, and removes debris via the vacuum fitting.
2. The apparatus of Claim 1, wherein a vertical height setting may be made within one-thousandth of an inch using the router vertical adjustment.
3. The apparatus of Claim 1, wherein the router is selected from the group consisting of a pneumatic router and an electric router.
4. The apparatus of Claim 1, wherein the router has a speed adjustment.
5. The apparatus of Claim 1, further comprising an end mill attached with the router.
6. The apparatus of Claim 5, wherein the end mill is a 0.250", three-fluted end mill.
7. The apparatus of Claim 1, further comprising grips on the router.
8. The apparatus of Claim 1, wherein the guide is a plastic material and is formed to a uniform height and width.

9. The apparatus of Claim 8, wherein the guide is a nylon profile.

10. The apparatus of Claim 1, further comprising at least one bearing mounted on the platform and interfacing with the guide.

11. The apparatus of Claim 3, further comprising air fittings attached to the platform for receiving air from an air supply and for delivering air to a pneumatic router.

12. A sheet metal router apparatus, comprising:

a guide, fastened to the sheet metal by fasteners drilled through the sheet metal;

a platform, mounted on the guide; and

a router having a vertical adjustment, mounted on the platform, wherein an operator adjusts the router vertical adjustment for a desired depth-of-cut and moves the platform continuously along the guide to make a desired cut.

13. The apparatus of Claim 12, wherein a vertical height setting may be made within one-thousandth of an inch using the router vertical adjustment.

14. The apparatus of Claim 12, further comprising a vacuum fitting mounted on the platform.

15. The apparatus of Claim 12, wherein the router is selected from the group consisting of a pneumatic router and an electric router.

16. The apparatus of Claim 12, wherein the router has a speed adjustment.

17. The apparatus of Claim 12, further comprising an end mill attached with the router.

18. The apparatus of Claim 17, wherein the end mill is a 0.25", three-fluted end mill.

19. The apparatus of Claim 12, wherein the guide is a plastic material formed to a uniform height and width.

20. The apparatus of Claim 12, further comprising at least one bearing mounted on the platform and interfacing with the guide.

21. The apparatus of Claim 15, further comprising air fittings attached to the platform for receiving air from an air supply and for delivering air to a pneumatic router.

22. An aircraft skin lap router apparatus, comprising:
a nylon guide, fastened to the skin by fasteners drilled through the skin;
a platform, mounted on the guide, the platform interfacing with the guide through at least one bearing;
a router having a vertical adjustment within one-thousandth of an inch, mounted on the platform, said router having at least two hand grips and a speed adjustment, and adapted to receive a source of power;
an end mill mounted removably on the router; and
a vacuum fitting, mounted on the platform, wherein an operator adjusts the router vertical adjustment for a desired depth-of-cut on the aircraft skin lap, the router cuts the skin lap, and removes debris via the vacuum fitting.

23. The router apparatus of Claim 22, wherein the source of power is electric or pneumatic.

24. A sheet metal router apparatus, comprising:

a nylon guide, fastened to the sheetmetal by fasteners drilled through the sheetmetal;

a platform, mounted on the guide, the platform interfacing with the guide through at least one bearing;

a router having a vertical adjustment within one-thousandth of an inch, mounted on the platform, said router having at least two hand grips and a speed adjustment, and adapted to receive a source of power;

an end mill mounted removably on the router; and

a vacuum fitting, mounted on the platform, wherein an operator adjusts the router vertical adjustment for a desired depth-of-cut, moves the platform continuously along the guide to make a desired cut, and removes debris via the vacuum fitting.

25. The router apparatus of Claim 24, wherein the source of power is electric or pneumatic.